

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently amended): A method of sending first and second signals to a plurality of user equipments, the method comprising :

providing a dedicated channel for each one of the plurality of user equipments,

providing a code-multiplexed shared channel for the plurality of user equipments,

splitting the plurality of user equipments substantially evenly into a first group of user equipments which are assigned to a first carrier frequency and into a second group of user equipments which are assigned to a second carrier frequency~~plurality of groups,~~

receiving first signals which are to be transmitted on dedicated channels being assigned to the first carrier frequency to provide two first signal components for transmit diversity;

receiving second signals which are to be transmitted on dedicated channels being assigned to the second carrier frequency to provide two second signal components for transmit diversity;

first code-multiplexing third signals to be sent to the first group of user equipments to provide two third signal components for multi-user diversity;

second code-multiplexing fourth signals to be sent to the second group of user equipments to provide two fourth signal components for multi-user diversity;

first adding one of the first signal components, one of the second signal components, one of the third signal components, and one of the fourth signal components;

second adding the other one of the first signal components, the other one of the second signal components, the other one of the third signal components, and the other one of the fourth signal components; and

first power-amplifying a result of the first adding to transmit the first power-amplified signal via a first antenna;

second power-amplifying a result of the second adding to transmit the second power-amplified signal via a second antenna;

~~assigning an antenna of a set of antennas to each of the plurality of groups;~~

~~sending one of the first signals to one of the plurality of user equipments on one of the dedicated channels on a carrier frequency by applying transmit diversity and simultaneously sending one of the second signals to the one of the plurality of user equipments on the code-multiplexed shared channel on the carrier frequency by applying multi-user diversity through an antenna assigned to a group among the plurality of groups which includes the one of the plurality of user equipments, and~~

~~assigning the carrier frequency to each user equipment in the group which includes the one of the plurality of user equipments; and~~

~~assigning a second carrier frequency to each user equipment in another group among the plurality of groups,~~

wherein the first carrier frequency and the second carrier frequency are alternately assigned to the plurality of user equipments in an order in which the plurality of user equipments become active,

wherein each of the first and second signals is assigned to either the first carrier frequency or to the second carrier frequency,

wherein each of the user equipments is assigned to one of the first and second carrier frequencies and to one of the first and second antennas,

wherein the first and second signals are real time signals and the third and fourth signals are non-real time signals, the real time signals including at least one of voice signals and video signals.

2. (Previously presented): The method of claim 1, wherein the dedicated channel is a DPCH type channel and the code-multiplexed shared channel is a HS-DSCH type channel of a HSDPA type system.

3. (Previously presented): The method of claim 1, further comprising:
assigning a carrier frequency of a set of at least first and second carrier frequencies to each one of the dedicated channels,
assigning a carrier frequency of the set of carrier frequencies to each one of the plurality of user equipments.

4. (Original): The method of claim 3, further comprising applying transmit diversity for sending of the one of the second signals.

5. (Currently Amended): The method of claim 4, wherein closed loop transmit diversity is applied for the third and fourth signals on a predetermined channel condition.

6. (Currently amended): A computer readable recording medium having tangibly stored thereon a computer program for enabling a computer to control a sending of first and second signals to a plurality of user equipments, the program comprising:

providing a dedicated channel for each one of the plurality of user equipments,

providing a code-multiplexed shared channel for the plurality of user equipments,

splitting the plurality of user equipments substantially evenly into a first group of user equipments which are assigned to a first carrier frequency and into a second group of user equipments which are assigned to a second carrier frequency~~a plurality of groups,~~

~~assigning an antenna of a set of antennas to each of the plurality of groups,~~

receiving first signals which are to be transmitted on dedicated channels being assigned to the first carrier frequency to provide two first signal components for transmit diversity;

receiving second signals which are to be transmitted on the dedicated channels being assigned to the second carrier frequency to provide two second signal components for transmit diversity;

first code-multiplexing third signals to be sent to the first group of user equipments to provide two third signal components for multi-user diversity;

second code-multiplexing fourth signal to be sent to the second group of user equipments to provide two fourth signal components for multi-user diversity;

first adding one of the first signal components, one of the second signal components, one of the third signal components, and one of the fourth signal components;

second adding the other one of the first signal components, the other one of the second signal components, the other one of the third signal components, and the other one of the fourth signal components; and

first power-amplifying a result of the first adding to transmit the first power-amplified signal via a first antenna;

second power-amplifying a result of the second adding to transmit the second power-amplified signal via a second antenna;

~~sending one of the first signals to one of the plurality of user equipments on one of the dedicated channels on a carrier frequency by applying transmit diversity and simultaneously sending one of the second signals to one of the plurality of user equipments on the code-multiplexed shared channel on the carrier frequency by applying multi-user diversity through an antenna assigned to a group among the plurality of groups which includes the one of the plurality of user equipments; and~~

~~assigning the carrier frequency to each user equipment in the group which includes the one of the plurality of user equipments; and~~

~~assigning a second carrier frequency to each user equipment in another group among the plurality of groups,~~

wherein the first carrier frequency and the second carrier frequency are alternately assigned to the plurality of user equipments in an order in which the plurality of user equipments become active,

wherein each of the first and second signals is assigned to either the first carrier frequency or to the second carrier frequency.

wherein each of the user equipments is assigned to one of the first and second carrier frequencies and to one of the first and second antennas.

wherein the first and second signals are real time signals and the third and fourth signals are non-real time signals, the real time signals including at least one of voice signals and video signals.

7. (Currently amended): A transmitter which sends first and second signals to a plurality of user equipments, the transmitter comprising:

a first component which provides a dedicated channel for each one of the plurality of user equipments,

a second component which provides a code-multiplexed shared channel to the plurality of user equipments,

a third component which splits the plurality of user equipments substantially evenly into a first group of user equipments which are assigned to a first carrier frequency and into a second group of user equipments which are assigned to a second carrier frequency~~plurality of groups,~~

~~a fourth component which assigns an antenna of a set of antennas to each of the plurality of groups;~~

a fourth component which receives first signals which are to be transmitted on dedicated channels being assigned to the first carrier frequency to provide two first signal components for transmit diversity;

a fifth component which receives second signals which are to be transmitted on the dedicated channels being assigned to the second carrier frequency to provide two second signal components for transmit diversity;

a sixth component which code-multiplexes third signals to be sent to the first group of user equipments to provide two third signal components for multi-user diversity;

a seventh component which code-multiplexes fourth signals to be sent to the second group of user equipments to provide two fourth signal components for multi-user diversity;

an eighth component which adds one of the first signal components, one of the second signal components, one of the third signal components, and one of the fourth signal components;

a ninth component which adds the other one of the first signal components, the other one of the second signal components, the other one of the third signal components, and the other one of the fourth signal components;

a tenth component which power-amplifies an adding result of the eighth component to transmit the first power-amplified signal via a first antenna; and

an eleventh component which power-amplifies an adding result of the ninth component to transmit the second power-amplified signal via a second antenna,

~~a fifth component which sends one of the first signals to one of the plurality of user equipments on one of the dedicated channels on a carrier frequency by applying transmit diversity;~~

~~a sixth component which sends one of the second signals to the one of the plurality of user equipments on the code-multiplexed shared channel on the carrier frequency by applying multi-user diversity;~~

~~wherein the fifth component sends the one of the first signals simultaneous to the sixth component sending the one of the second signals through an antenna assigned to a group among the plurality of groups which includes the one of the plurality of user equipments;~~

~~wherein the fourth component assigns the carrier frequency to each user equipment in the group which includes the one of the plurality of user equipments, and assigns a second carrier frequency to each user equipment in another group among the plurality of groups;~~

wherein the first carrier frequency and the second carrier frequency are alternately assigned to the plurality of user equipments in an order in which the plurality of user equipments become active,

wherein each of the first and second signals is assigned to either the first carrier frequency or to the second carrier frequency,

wherein each of the user equipments is assigned to one of the first and second carrier frequencies and to one of the first and second antennas,

wherein the first and second signals are real time signals and the third and fourth signals are non-real time signals, the real time signals including at least one of voice signals and video signals.

8. (Previously presented): The transmitter of claim 7, further comprising scheduler which provides the multi-user diversity.

9. (Previously presented): The transmitter of claim 7, further comprising:
means for assigning a carrier frequency of a set of at least first and second carrier frequencies to each one of the dedicated channels,
means for assigning of a carrier frequency of a set of carrier frequencies to each one of the user equipments.

10. (Currently amended): A telecommunication system for sending first and second signals to a plurality of user equipments, the telecommunication system comprising:
a first component which provides a dedicated channel for each one of the plurality of user equipments,
a second component which provides a code-multiplexed shared channel for the plurality of user equipments,

a third component which splits the plurality of user equipments substantially evenly into a first group of user equipments which are assigned to a first carrier frequency and into a second group of user equipments which are assigned to a second carrier frequency, plurality of groups,

a fourth component which receives first signals which are to be transmitted on dedicated channels being assigned to the first carrier frequency to provide two first signal components for transmit diversity;

a fifth component which receives second signals which are to be transmitted on the dedicated channels being assigned to the second carrier frequency to provide two second signal components for transmit diversity;

a sixth component which code-multiplexes third signals to be sent to the first group of user equipments to provide two third signal components for multi-user diversity;

a seventh component which code-multiplexes fourth signals to be sent to the second group of user equipments to provide two fourth signal components for multi-user diversity;

an eighth component which adds one of the first signal components, one of the second signal components, one of the third signal components, and one of the fourth signal components;

a ninth component which adds the other one of the first signal components, the other one of the second signal components, the other one of the third signal components, and the other one of the fourth signal components;

a tenth component which power-amplifies an adding result of the eighth component to transmit the first power-amplified signal via a first antenna; and

an eleventh component which power-amplifies an adding result of the ninth component to transmit the second power-amplified signal via a second antenna~~a fourth component which provides an antenna of a set of antennas to each one of the plurality of groups;~~

~~a fifth component which provides one of the first signals to one of the plurality of user equipments on one of the dedicated channels on a carrier frequency by applying transmit diversity;~~

~~a sixth component which provides one of the second signals to the one of the plurality of user equipments on the code-multiplexed shared channel on the carrier frequency by applying multi-user diversity;~~

~~wherein the fifth component provides the one of the first signals simultaneous to the sixth component providing the one of the second signals through an antenna assigned to a group among the plurality of groups which includes the one of the plurality of user equipments;~~

~~wherein the fourth component assigns the carrier frequency to each user equipment in the group which includes the one of the plurality of user equipments, and assigns a second carrier frequency to each user equipment in another group among the plurality of groups;~~

wherein the first carrier frequency and the second carrier frequency are alternately assigned to the plurality of user equipments in an order in which the plurality of user equipments become active,

wherein each of the first and second signals is assigned to either the first carrier frequency or to the second carrier frequency.

wherein each of the user equipments is assigned to one of the first and second carrier frequencies and to one of the first and second antennas,

wherein the first and second signals are real time signals and the third and fourth signals are non-real time signals, the real time signals including at least one of voice signals and video signals.

11. Canceled.